ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

DAkkS Deutsche Akkreditierungsstelle D-ZE-11321-01-00

TÜV SÜD Product Service

Certificate of Conformity

No. ESY 087538 0020 Rev. 00

Holder of Certificate: **Shenzhen Senergy Technology Co., Ltd.**
Block D, BC Park, No.18, Xiusha Rd.
Shatian Kengzi Sub-district
Pingshan District
518112 Shenzhen
PEOPLE'S REPUBLIC OF CHINA

Product: **Converter (Hybrid inverter)**

Model(s): **SE 5KHB-D3, SE 6KHB-D3, SE 8KHB-D3, SE 10KHB-D3**

Parameters: See page 3

Applicable standards:
EN 50549-1:2019/AC:2019
RfG:2016
NC RfG:2018
PTPiREE:2021

This Certificate of Conformity confirms the compliance with the above listed standards on a voluntary basis. It refers only to the sample submitted to TÜV SÜD Product Service GmbH and does not certify the quality or safety of the serial products. It was issued according to TÜV SÜD Product Service certification program Photovoltaics and Grid Integration. For details see: www.tuvsud.com/ps-cert

Test report no.: 64290233013001

Date, 2023-06-02

(Billy Qiu)

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

TÜV®

DAkkS Deutsche Akkreditierungsstelle D-ZE-11321-01-00

TÜV SÜD Product Service

Certificate of Conformity

No. ESY 087538 0020 Rev. 00

Technical Certifier (Billy Qiu) appointed by Certification Body TÜV SÜD Product Service GmbH performed assessment of the products listed in this certification in the place: Ridlerstraße 65, 80339 Munich, Germany.

Test requirement	The certification complies with the requirements of the following documents for Type A PGM installations: EN 50549-1:2019/AC:2019 Requirements for generating plants to be connected in parallel with distribution networks - Part 1: Connection to a LV distribution network - Generating plants up to and including Type B RfG:2016 Commission Regulation (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for the connection of generating units to the Network (OJ EU L 112/1 of 27.4.2016) NC RfG:2018 General applicability requirements resulting from EU commission regulation 2016/631 of of 14 April 2016 establishing a network code concerning the requirements for with regard to the connection of generating units to the grid (NC RfG-2018)- approved by the Decision of the President of the Energy Regulatory Office DRE.WOSE.7128.550.2.2018.ZJ dated 2 January 2019. PTPiREE:2021 Conditions and procedures for the use of certificates in the process of connecting modules generation modules to the power grid V1.2
Type of certification programme	1(a) according to EN ISO/IEC 17067 Based on Photovoltaics and Grid Integration Certification Program (Revision 6,Dated 5 Dec 2021) for Poland Grid Code
Manufacturer & Address of manufacturing site	Shenzhen Senergy Technology Co., Ltd. Block D, BC Park, No.18, Xiusha Rd., Shatian Kengzi Sub-district, Pingshan District, Shenzhen 518112, P. R. CHINA
Software version	051001
Certificate expiry date	2028-06-01

DAkkS Deutsche Akkreditierungsstelle D-ZE-11321-01-00

TÜV SÜD Product Service

Certificate of Conformity

No. ESY 087538 0020 Rev. 00

Parameters:

Model	SE 5KHB-D3	SE 6KHB-D3	SE 8KHB-D3	SE 10KHB-D3
PV terminal parameters				
$V_{Max.}$ PV	1000 Vd.c.			
MPPT Voltage Range	160 - 950 Vd.c.			
MPPT Voltage Range (full load)	330 - 800 Vd.c.		370 - 800 Vd.c.	
Max. continuous PV input current	15 Ad.c. / 15 Ad.c.		20 Ad.c. / 30 Ad.c.	
Isc PV	20 Ad.c. / 20 Ad.c.		30 Ad.c. / 40 Ad.c.	
Max. continuous PV input power	9000 W		15000 W	
Battery terminal parameters				
Battery type	Lithium-ion / Lead-acid			
Voltage range	150 - 600 Vd.c.			
Rated voltage	504 Vd.c.			
Maximum charge / discharge current	25 Ad.c. / 25 Ad.c.		50 Ad.c. / 50 Ad.c.	
Maximum charge / discharge power	9000W/5800W	9000W/7000W	15000W/9100W	15000W/11300W
Maximum charge power from grid to battery	5000 W	6000 W	8000 W	10000 W
Grid terminal parameters				
Rated voltage	230/400 Va.c., 3W+N+PE			
Rated frequency	50 Hz			
Rated current output to Grid	7.2 Aa.c.	8.7 Aa.c.	11.6 Aa.c.	14.5 Aa.c.
Maximum continuous current output to Grid	8.0 Aa.c.	9.6 Aa.c.	12.7 Aa.c.	16.0 Aa.c.
Rated active power output to Grid	5000 W	6000 W	8000 W	10000 W
Maximum apparent power output to Grid	5500 VA	6600 VA	8800 VA	11000 VA
Maximum continuous current from Grid to battery	8.0 Aa.c.	9.6 Aa.c.	12.7 Aa.c.	16.0 Aa.c.
Maximum continuous current from Grid	25 Aa.c.			
Maximum apparent power from Grid to battery	5500 VA	6600 VA	8800 VA	11000 VA
Maximum apparent power from Grid	15800 VA			
Power factor (Cos phi), adjustable	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)			

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

TÜV®

DAkkS Deutsche Akkreditierungsstelle D-ZE-11321-01-00

TÜV SÜD Product Service

Certificate of Conformity

No. ESY 087538 0020 Rev. 00

Scope of assessment and results

Clause of NfG	Requirement	Type A	Type B	Type C	Type D	Assessment Result
Article 13.1 (a)	Frequency range	Y	-	-	-	Pass
Article 13.1 (b)	Ability to withstand the rate of change of frequency (RoCoF)	Y	-	-	-	Pass
Article 13.2	Limited frequency sensitive mode — overfrequency (LFSM-O)	Y	-	-	-	Pass
Article 13.4 & 13.5	Maximum power capability reduction with falling frequency	Y	-	-	-	Pass
Article 13.6	Remote ceasing active power	Y	-	-	-	Pass
Article 13.7	Automatic connection to the network	Y	-	-	-	Pass

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

TÜV®